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ABSTRACT

This survey was designed to obtain information on jobs and task requirements for instructional design (ID) professionals and relate positions in the field to academic programs. Data were collected via a questionnaire that combined needs assessment and analysis of instructional requirements, including the demographics of ID positions, the background and competencies required for those positions, the career objectives of ID professionals, and how a university or college could best respond to their ID needs. The questionnaire was sent to 260 members of professional associations in the western Pennsylvania region, and 63 were returned, making a return rate of about 25%. Of the respondents, 47.6% were from school settings, 42.8% were from other settings (e.g., business, industry, government, health, consulting), and 9.5% were from higher education. It was found that: (1) one third of those employed in ID tasks have no one to help them with these tasks; (2) the task of developing media is the least critical task and the one done the least; (3) generally, "doing the task improperly" has a moderate to serious effect depending on the setting and competency; (4) the most important tasks for school personnel are evaluating, managing, and diffusing, while the most important task in other settings is establishing goals; (5) there is more perceived instructional design being accomplished in schools than is generally assumed; (6) much instructional design is done by people not prepared in the instructional design and technology field; and (7) about a third of the respondents did not perceive task analysis to be critical. A copy of the questionnaire is appended. (4 references) (BBM)

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Title:

Survey of Instructional Design Needs and Competencies

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TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

Academic programs in instructional technology must serve multiple settings, such as business and industry, schools, government and the health professions. In some of these settings graduate degrees in instructional design (ID) are not perceived as a stepping stone to advancement. Thus, while academic programs in instructional design have a growing body of potential students, they may not be perceived as able to meet the needs of these students. One major problem of academic programs is determining what needs can be met and justifying the inclusion of these needs in the curriculum.

The faculty of academic programs have to be able to characterize the regional job market for ID professionals and the skills graduates must have to enter or advance in that market. To solve this problem the authors developed a questionaire survey that differs in many ways from the usual needs assessment in this area. The survey combines needs assessment and analysis of instructional requirements. Concurrently gathering information on jobs and task requirements proved to be a successful method for relating positions in the field to academic programs.

The questionaire was administered in the Western Pennsylvania region which was defined as covering from Morgantown, West Virginia in the south to Erie, Pennsylvania in the north and from Wheeling, West Virginia in the west to Johnstown and Indiana, Pennsylvania in the east. The questionaire gathered data on demographics of ID positions, on the background and competencies required for these positions and on the career objectives of ID professionals. There were also two questions about how a university or college could best respond to their ID needs. Questions 1-8 collected demographic and job information. Questions 9-17 covered competencies and task requirements. Questions 18-20 addressed career objectives and opportunities for professional development.

The task requirements section (questions 9-17) was based on a method developed by Fredrickson, Hawley, Whitemore and Wood (1980) for the Department of the Air Force. This method of task analysis identifies seven task criticality dimensions: 1. Learning Difficulty, 2. Performance Difficulty, 3. Consequence of Inadequate Performance, 4. Immediacy of Performance, 5. Availability of Assistance, 6. Frequency of Performance, 7. Proficiency Decay Rate. Each dimension is accompanied by a three point scale, such as easy-moderate-hard, low-moderate-high or infrequently-occasionally-frequently. The points on the scale are further defined by phrases, for example, easy-has little or no effect, moderate-could degrade or delay, hard-would result in failure. A numerical value is given to a point on the scale.

These numerical values are used to calculate recommended training requirements including certification or qualification (formal training), on-the-job training (OJT), proficiency maintenance, reduced time for training or elimination from training. For example, if learning difficulty and consequence of performance are rated low and availability of assistance is rated high, it is recommended that these tasks be eliminated from training because they will not be important to success.

Initially, the questionaire included each of the criticality dimensions followed by a list of 16 competencies. Seven dimensions with 16 items each to respond to on a five point scale made the questionaire too long to be feasible. Even though respondents were directed to indicate the level of criticality for only those competencies they checked as relevant to their job, the procedure was too time-consuming. As a result, the second draft of the questionaire was based on the four criticality dimensions deemed by the authors to be most relevant to the study. These four criticality dimensions were restated as:

1. Rate the difficulty of this task.
2. Were you expected to perform this task immediately upon starting your present position?
3. Are there people in your organization to whom you can go for help with this task?
4. What happens if you perform this task improperly?

The revised questionaire simplified the answers required. Answer formats varied from checking one of three or four phrases to checking yes or no. The revised questionaire also allowed for an open-ended response to ways the university can best meet your needs. Because there were changes in the dimensions, the scales and the mode of responding, it was no longer possible to use the questionaire to numerically determine the recommended type of training.

Questions 9-17 were also based on an analysis of ID competencies. The NSPI/AECT (National Society for Performance and Instruction/Association for Educational Communications and Technology) list of ID competencies was a starting point. Sixteen items on this list were given to beginning students in ID who were asked to write the meaning of each competency. This procedure allowed identification of words and phrases confusing to those who might be in the field doing the tasks but who were unfamiliar with some of the terminology of the field. One competency that proved to be very confusing as stated was "analyze the structural characteristics of jobs, tasks, and content." The list was then reduced to the most essential items in the opinion of the authors and confusing items were restated. The final list of nine competencies for the questionaire was:

a. establishing educational goals
b. doing task analysis
c. determining learner characteristics
d. writing objectives
e. selecting strategies for instruction
f. developing media
g. evaluating instruction
h. managing ID projects
i. promoting adoption of instructional programs

A mailing list for the survey was developed from the lists of four professional associations with members in the region. These associations were: Pennsylvania Association for Educational Communications and Technology, National Society for Performance and Instruction, American Society for Training and Development and Pennsylvania Association for

Supervision and Curriculum Development. All regional members of the first two associations were included. The list from the Pittsburgh Chapter of the American Society for Training and Development was culled by selecting only those members whose job titles or organizations indicated relationship to ID tasks. For example, all members from Development Dimensions International and Applied Science Associates were included. Members with titles such as Training Development Specialist or Manager were included; while those with titles such as Human Resource Specialist or Manager were not. If the authors knew a member was involved with ID, that person was also included. Regional members of the Pennsylvania Association for Supervision and Curriculum were so numerous that list was sampled. Of the 104 local members of that association 63 were sent questionaires. To reduce the list all the names from one district were put on cards and one card was drawn randomly. A district with only one member received a questionaire; a district with many members also received only one questionaire.

The cover letter began by defining ID as a "step-by-step systematic process for developing teaching-learning situations. This process consists of procedures and guidelines that help the designer determine learning objectives, plan instructional events, and measure learning outcomes." Those receiving the questionaire were then asked to complete it if they were involved with ID tasks or positions. They were told this information would be used to plan professional development opportunities for the region. Those who decided they did not supervise or perform ID tasks were asked to pass the questionaire to someone who did, if possible.

Two hundred and sixty questionaires were mailed. A post-card reminder followed three weeks later. Sixty-three questionaires were returned making a return rate of about 25%. Of the surveys returned 47.6% or 30 were from school settings, 42.8% or 27 were from other settings, such as business and industry, government, health, consulting. Six or 9.5% were from higher education. It was decided that the return rate from higher education was too small to provide useable data. Because the results apply to the Western Pennsylvania region, they are not generalizable, but some may be of interest. The data was analyzed for the whole population and then broken down by settings: schools, other and higher education. Seven findings of interest are:

1. One third of those employed in ID tasks have no one to help them with these tasks.

2. The task of developing media is the least critical task and is the task done the least.

3. Generally, "doing the task improperly" had a moderate to serious effect. Whether the effect was moderate or serious depended on the setting and competency.

4. Therefore, the most important tasks depend on the setting. For school personnel they are evaluating, managing and diffusing. For other settings (industry, health, etc.) the most important task is establishing goals.

5. There is more perceived instructional design being accomplished in schools than is generally assumed

6. Much instructional design is done by people not prepared in the instructional design and technology field. (The questionaire did not measure quality of performance.

7. About a third of those responding did not perceive task analysis to be critical.

A more complete report on the results is available from the authors. The questionaire is given at the end of this article. So far the validity of the questionaire has been content validity based on the process of development and review by two ID experts and a measurement and evaluation expert. The reliability has not been established. It has been used only in this study. Those who use the questionaire are requested to credit the authors and to share their results with the authors. This will help establish validity and reliability beyond the Western Pennsylvania region.

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Appendix: The Questionaire

SURVEY ON COMPETENCY REQUIREMENTS FOR INSTRUCTIONAL DESIGN POSITIONS

Directions: For each item below, please check the appropriate response.

1. In what setting do you work?

   _____ School System
   _____ Business and Industry
   _____ Higher Education
   _____ Health Agency
   _____ Government
   _____ Consulting Firm
   _____ Other, specify

2. How many employees in your organization spend at least 50% of the time on ID tasks? _____

3. During the next five years do you expect the number of ID positions in your organization to:

   _____ Increase _____ Stay the same _____ Decrease

4. How many years have you been employed in ID?

   _____ 2 years or less
   _____ 3 to 5 years
   _____ 6 to 10 years
   _____ 11 to 20 years
   _____ more than 20 years

5. How would you describe your position within your organization?

   _____ Staff _____ Supervisor _____ Manager

6. What portion of your time is devoted to performing or managing ID?

   _____ 20% or less
   _____ 21 to 40%
   _____ 41 to 60%
   _____ 61 to 80%
   _____ 81 to 100%

7. Check your level of education and indicate your major area of study at that level.

   _____ Associate/Technical Degree _____
   _____ Bachelor's Degree _____
   _____ Master's Degree _____
   _____ Doctoral Degree _____

8. Rate the relevance of each of your educational degrees to your present position.

	None	Some	Great deal
Associate/technical Degree	1	2	3
Bachelor's Degree	1	2	3
Master's Degree	1	2	3
Doctorate	1	2	3

Directions: Questions 9 - 17 present a variety of tasks people are asked to do in instructional design positions. Each question asks first if you perform the task. If you answer yes, you are given a set of questions on the task.

9. Are you presently involved in establishing instructional goals?

_____ Yes _____ No

If you answered yes to this question, please complete items a through d.

a. Rate the difficulty of this task.

_____ Easy to do
_____ Moderately difficult to do
_____ Difficult to do

b. Were you expected to perform this task immediately upon starting your present position?

_____ Yes _____ No

c. Are there people in your organization to whom you can go for help with this task?

_____ Yes _____ No

d. What happens if you perform this task improperly?

_____ has no effect
_____ has minimal effect
_____ has moderate effect
_____ has serious effect

10. Are you presently involved in doing task analysis?

_____ Yes _____ No

If you answered yes to this question, please complete items a through d.

a. Rate the difficulty of the task.

_____ Easy to do
_____ Moderately difficult to do so
_____ Difficult to do

b. Were you expected to perform this task immediately upon starting your present task?

_____ Yes _____ No

c. Are there people in your organization to whom you can go for help to do this task?

_____ Yes No

d. What happens if you perform this task improperly?

_____ has no effect
_____ has minimal effect
_____ has moderate effect
_____ has serious effect

11. Are you presently involved in determining learner characteristics?

_____ Yes _____No

If you answered yes to this question, please complete items a through d.

a. Rate the difficulty of the task.

_____ Easy to do
_____ Moderately difficult to do
_____ Difficult to do

b. Were you expected to perform this task immediately upon starting your present position?

_____ Yes _____ No

c. Are there people in your organization to whom you can go for help to do this task?

_____ Yes _____ No

d. What happens if you perform this task improperly?

_____ has no effect
_____ has minimal effect
_____ has moderate effect
_____ has serious effect

12. Are you presently involved in writing objectives?

_____ Yes _____ No

If you answered yes to this question, please complete items a through d.

a. Rate the difficulty of the task.

_____ Easy to do
_____ Moderately difficult to do
_____ Difficult to do

b. Were you expected to perform this task immediately upon starting your present position?

_____ Yes _____ No

c. Are there people in your organization to whom you can go for help to do this task?

_____ Yes _____ No

d. What happens if you perform this task improperly?

_____ has no effect
_____ has minimal effect
_____ has moderate effect
_____ has serious effect

13. Are you presently involved in selecting strategies for conducting instruction?

_____ Yes _____ No

If you answered yes to this question, please complete items a through d.

a. Rate the difficulty of the task.

_____ Easy to do
_____ Moderately difficult to do
_____ Difficult to do

b. Were you expected to perform this task immediately upon starting your present position?

_____ Yes _____ No

c. Are there people in your organization to whom you can go for help to do this task?

_____ Yes _____ No

d. What happens if you perform this task improperly?

_____ has no effect
_____ has minimal effect
_____ has moderate effect
_____ has serious effect

14. Are you presently involved in developing media?

_____ Yes _____ No

If you answered yes to this question, please complete items a through e.

a. What kind of media do you develop? _____

_____

b. Rate the difficulty of the task.

_____ Easy to do
_____ Moderately difficult to do
_____ Difficult to do

c. Were you expected to perform this task immediately upon starting your present position?

_____ Yes _____ No

d. Are there people in your organization to whom you can go for help to do this task?

_____ Yes _____ No

e. What happens if you perform this task improperly?

_____ has no effect
_____ has minimal effect
_____ has moderate effect
_____ has serious effect

15. Are you presently involved in evaluating instruction?

_____ Yes _____ No

If you answered yes to this question, please complete items a through d.

a. Rate the difficulty of the task.

_____ Easy to do
_____ Moderately difficult to do
_____ Difficult to do

b. Were you expected to perform this task immediately upon starting your present position?

_____ Yes _____ No

c. Are there people in your organization to whom you can go for help to do this task?

_____ Yes _____ No

d. What happens if you perform this task improperly?

_____ has no effect
_____ has minimal effect
_____ has moderate effect
_____ has serious effect

16. Are you presently involved in managing ID projects?

_____ Yes _____ No

If you answered yes to this question, please complete items a through d.

a. Rate the difficulty of the task.

_____ Easy to do
_____ Moderately difficult to do
_____ Difficult to do

b. Were you expected to perform this task immediately upon starting your present position?

_____ Yes _____ No

c. Are there people in your organization to whom you can go for help to do this task?

_____ Yes _____ No

d. What happens if you perform this task improperly?

_____ has no effect
_____ has minimal effect
_____ has moderate effect
_____ has serious effect

17. Are you presently involved in promoting adoption of instructional programs?

_____ Yes _____ No

If you answered yes to this question, please complete items a through d.

a. Rate the difficulty of the task.

_____ Easy to do
_____ Moderately difficult to do
_____ Difficult to do

b. Were you expected to perform this task immediately upon starting your present position?

_____ Yes _____ No

c. Are there people in your organization to whom you can go for help to do this task?

_____ Yes _____ No

d. What happen if you perform this task improperly?

_____ has no effect
_____ has minimal effect
_____ has moderate effect
_____ has serious effect

18. Which of the following best describes your career objectives for the next 3 years?

_____ Maintain skills in current position
_____ Upgrade ID skills for current position
_____ Add new skills to obtain new ID position
_____ Leave ID field

19. Check any of the following which you feel would be useful for achieving your career objectives.

_____ Certification courses
_____ Short workshops (1/2 day)
_____ Longer workshops (1-3days)
_____ Degree programs
_____ Internships
_____ Other, specify _____

20. What kind of professional opportunities in instructional design would you like to see offered at the university level?

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